

REMARKS

Applicant respectfully submits this Response in reply to the Final Official Action dated October 25, 2010. Applicant submits that this Response is fully responsive to the Final Official Action for at least the reasons set forth herein.

In the Final Official Action, claims 1-3, 10-15, 22-27 and 34-37 were rejected under 35 U.S.C. § 103(a) as being allegedly obvious over the Applicant's Admitted Prior Art ("AAPA") in view of Takada, U.S. Patent No. 7,031,402.

Applicant respectfully disagrees with the rejection and traverses with at least the following analysis.

Applicant submits that the cited references, whether taken alone or in any proper combination thereof, fail to teach, suggest or render obvious each and every limitation of the rejected claims.

For example, claim 1 recites, *inter alia*, correspondence determining means for determining, upon producing first through M-th (M being an integer not smaller than 2) transmission signals, correspondence between first through K-th (K being an integer not smaller than 2) transmission sequences and frequency channels so that the correspondence is different for each of said plurality of transmission antennas, where each transmission signal output has a different correspondence. Claims 13, 25, and 37 each recite a similar limitation.

Applicant submits that the cited references fail to teach or render obvious having a different correspondence for each antenna, as claimed. At best, both the AAPA and Takada teach having a different frequency hopping for each **transmitter** (not antenna). As such, the teaching in Takada is cumulative to the teaching of the AAPA.

Notably, referring to Figure 4 of the subject application (the AAPA), the Background Art section of the subject application describes generation of a unique hopping pattern for each transmitter, wherein **each transmitter generates and transmits a plurality of transmission signals**. Specifically, a hopping pattern generating portion (reference numeral 86 in Figure 4) produces a hopping pattern S_{HP1} unique to the **transmitter 8-1** to thereby make the transmitter 8-1 produce a plurality of transmission signals S_{TSX11} and S_{TSX12} by using the hopping pattern S_{HP1} .

Takada also teaches that different **transmitters** use different hopping patterns. However, Takada does not teach that each **antenna** uses different hopping patterns. Notably, Takada does not suggest (at col 1, lines 63-66) that the correspondence is different for each of the plurality of transmission antennas, where each transmission signal output has a different correspondence. In fact, there is no teaching or suggestion that the transmitter is even capable of using multiple different frequency hopping patterns for multiple antennas (the reference is also silent on the number of antennas in the transmitter). Therefore, Takada fails to cure the underlying deficiencies with the primary reference; the teaching is merely cumulative.

In contrast, according to the claimed invention **a plurality of** unique hopping patterns are generated for each transmitter, where each transmitter has multiple antennas and wherein **each transmitter generates and transmits a plurality of transmission signals** by using the **plurality** of hopping patterns, i.e., each transmission antenna for the same wireless communication apparatus transmits a different signal sequence with a different hopping pattern.

Accordingly, independent claims 1, 13, 25 and 37 are patentable over the AAPA and Takada. Dependent claims 2, 3, 10-12, 14, 15, 22-24, 26, 27 and 34-36 are patentable over the cited references based at least upon the above-identified analysis and in view of their dependency, whether directly or indirectly, from independent claims 1, 13 and 25.

Claims 4, 5, 16, 17, 28 and 29 were rejected under 35 U.S.C. § 103(a) as being allegedly obvious over the AAPA and Takada as applied above and in further view of Ue et al., U.S. Patent No. 6,611,676 (hereinafter “Ue”).

Without acquiescing to the propriety of the Examiner’s interpretation of Ue, Applicant submits that claims 4, 5, 16, 17, 28 and 29 are patentable over the cited references, whether taken alone or in any proper combination thereof, based at least upon the above-identified analysis and in view of their dependency, whether directly or indirectly, from claims 1, 13 and 25. Ue fails to cure the above-identified deficiencies.

In the Final Official Action, claims 1-3, 10-15, 22-27 and 34-37 were rejected under 35 U.S.C. § 103(a) as being allegedly obvious over the AAPA in view of Hottinen et al, U.S. Pat. Pub. 2003/0081563 (hereinafter “Hottinen”).

Applicant respectfully disagrees with the rejection and traverses with at least the following analysis.

Applicant submits that the cited references, whether taken alone or in any proper combination thereof fails to teach, suggest or render obvious each and every limitation of the rejected claims.

For example, claim 1 recites, *inter alia*, correspondence determining means for determining, upon producing first through M-th (M being an integer not smaller than 2) **transmission signals**, correspondence between first through K-th (K being an integer not smaller than 2) **transmission sequences** and frequency channels so that the correspondence is different for each of said plurality of transmission antennas, where each transmission signal output has a different correspondence. Claims 13, 25, and 37 each recite a similar limitation.

Notably, the correspondence is between first through K-th (K being an integer not smaller than 2) transmission sequences and frequency channels. Hottinen teaches that the same signal is transmitted by using different channels to obtain a diversity gain. Specifically, Hottinen teaches that the same symbol is transmitted by using different frequencies or different codes. See Figs. 2, 3 and ¶¶0041 and 0089. Notably, ¶0093 states that “[b]y means of the transmitter of the invention, a signal 320 is transmitted by using three or more antennas” (emphasis added). In contrast, in the claimed invention correspondence between the first through K-th transmission sequences and the frequency channels is different for each of the plurality of transmission antennas of the same wireless communication apparatus.

Accordingly, independent claims 1, 13, 25 and 37 are patentable over the AAPA and Hottinen. Dependent claims 2, 3, 10-12, 14, 15, 22-24, 26, 27 and 34-36 are patentable over the cited references based at least upon the above-identified analysis and in view of their dependency, whether directly or indirectly, from independent claims 1, 13 and 25.

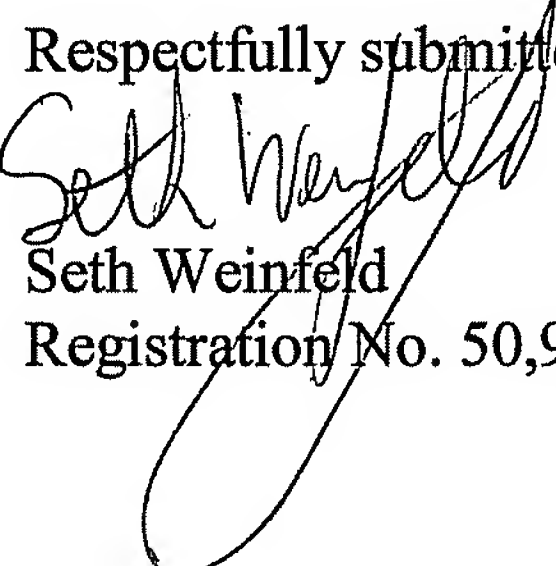
Claims 4, 5, 16, 17, 28 and 29 were rejected under 35 U.S.C. § 103(a) as being allegedly obvious over the AAPA and Hottinen as applied above and in further view of Ue.

Without acquiescing to the propriety of the Examiner’s interpretation of Ue, Applicant submits that claims 4, 5, 16, 17, 28 and 29 are patentable over the cited references, whether taken alone or in any proper combination thereof, based at least upon the above-identified analysis and in view of their dependency, whether directly or indirectly, from independent claims 1, 13 and 25. Ue fails to cure the above-identified deficiencies.

Accordingly, Applicant respectfully requests that the Examiner withdraw the rejections of claims 1-5, 10-17, 22-29, and 34-37 pursuant to 35 U.S.C. § 103(a) as the claims are not obvious over the cited references.

Conclusion

In view of the above, it is respectfully submitted that the subject application is in condition for allowance. Accordingly, it is respectfully requested that the subject application be allowed and a Notice of Allowability issued. If the Examiner believes that a telephone conference with Applicant's representative would expedite allowance of the application, the Examiner is requested to telephone the undersigned.

Respectfully submitted,

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